



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

TITLE:

Improved Integrated Decision Support  
System For Optimizing The Training  
And Transition Of Airline Pilots

Attorney Docket No.:

CA108US

U.S. Filing Date:

January 31, 2002

Examiner:

Not Assigned

Art Unit:

Assignee: CALEB Technologies Corp.

2121

U.S. Patent Application Serial No.: 10/062099

Inventors: Benjamin Glover Thengvall &  
Julian Enrique Pachon

Assistant Commissioner For Patents  
U.S. Patent And Trademark Office  
Washington, D.C. 20231

RECEIVED  
MAR 29 2002  
Technology Center 2100

Dear Sir:

INFORMATION DISCLOSURE STATEMENT

Pursuant to 37 CFR § 1.97 and 1.98, Form PTO/SB/08A is enclosed for consideration in the examination and prosecution of this case. A copy of each document listed is enclosed.

No representation is made or intended that more relevant information does not exist, that the order of presentation of the enclosed materials represents order of importance or relevance, that any admissions of any kind is made with regard to the enclosed materials, or that any of the enclosed material is properly citable as prior art against this case.

Applicants respectfully submit that their invention is patentable over the enclosed and listed materials, which are summarized as follows:

U.S. Patents

1. U.S. Patent No. 6,076,067 teaches the decomposition of a vehicle origination and destination problem into a linear vehicle assignment model and a nonlinear network flow model. The nonlinear aspects of the targeted market are incorporated into the vehicle assignment model through use of linear approximations to a total revenue function.



2. U.S. Patent No. 6,292,806B1 discloses a system and method which includes features for accessing and managing a database of aircraft technical information to support aircraft maintenance and repair assistance.

3. U.S. Patent No. 6,278,965NB1 discloses a real time data management system using data generated at different rates to support aircraft surface operations.

4. U.S. Patent No. 6,275,812B1 discloses a system and method for training and transition of persons using skill templates and weightings.

5. U.S. Patent No. 6,275,767B1 discloses a method for implementing an air traffic service unit which links aircraft equipments, communication systems, and an operating system. Hooks method is used to filter operating system calls from airline operational communications.

6. U.S. Patent No. 6,263,315B1 discloses a method and system for supporting decisions to accept or deny requests for resource capacity by using control logic that accesses multi-dimensional lookup tables of price values for each resource.

7. U.S. Patent No. 6,240,362B1 discloses a method of scheduling a vehicle in real-time to transport freight and passengers through use of a host computer and freight/passenger terminals connected to a network, where arrival and departure times to each destination are estimated and updated as the vehicle travels.

8. U.S. Patent No. 6,161,097 discloses a system and method which receives data from multiple sources that is generated at different rates to provide real-time scheduling of the movement of plural surface vehicles.

9. U.S. Patent No. 6,078,912 discloses a computer system and method for determining and managing support resources of an object resource.

10. U.S. Patent No. 6,064,981 discloses a system and method for accepting or negotiating freight forwarder or carrier rates by way of the Internet.

11. U.S. Patent No. 5,794,224 discloses a network probabilistic resource allocation system and method which includes a low capacity computational module, and a self-organizing associative network, where nodes represent elementary resources, terminal end nodes represent goals, and weighted links represent the order of resource association in different allocation episodes.

12. U.S. Patent No. 5,450,317 discloses an automated system and method for recommending optimal order quantities and timing, choice of vendor locations and storage locations, and transportation modes for individual items and product families.

13. U.S. Patent No. 5,265,006 discloses a method and system for distributing planned and random orders with source and destination points in a predetermined geographic territory.



14. U.S. Patent No. 4,797,839 discloses a system and method which processes probability data to provide optimum allocation of resources among a series of demands.

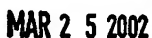
Printed Publications

1. "Optimized Pilot Planning and Training at Continental Airlines", by Gang Yu, Benjamin Thengvall, Julian Pachon, Darryal Chandler, and Al Wilson, is a submission to INFORMS, for an Edelman Award (10/17/01). Benjamin Thengvall and Julian Pachon are the inventors of the present invention. While the submission provides a brief overview description of a decision support system which manages large volumes of data and employs state-of-the-art optimization modeling and solution techniques to allocate human and training resources to obtain optimal operational and financial performance, no disclosure of the current invention is provided.

2. "Decision Support Systems-An application in strategic manpower planning of airline pilots", by Peter J. Verbeek, European Journal of Operational Research, pages 368-381, Vol. 55 (1991), discusses a framework for designing a decision support system. While operations research equations for sub-problems such as allocation of flexible demand, determination of need for vacancies, and allocation of instruction tasks are provided, no mixed integer model for training and transition of pilots for an entire airline is provided. In fact, it is stated on page 378 that an attempt to produce such a mixed integer model failed for being too large for commercial solution.

Respectfully Submitted,

Gerald E. Lester  
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Tel. (281)392-8288  
Fx. (281)392-2850



U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Substitute for form 1449A/PTO

(use as many sheets as necessary)

<b>Application Number</b>	10/062099
<b>Filing Date</b>	01/31/02
<b>First Named Inventor</b>	Julian E. Pachon
<b>Art Unit</b>	2121
<b>Examiner Name</b>	Not Assigned
<b>Attorney Docket Number</b>	CA10805

Sheet 1 of 2

[illegible][illegible]

Date Considered

<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

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PTO/SB/21 (08-00)  
Approved for use through 10/31/2002. OMB 0651-0031  
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

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<b>TRANSMITTAL FORM</b> <i>(to be used for all correspondence after initial filing)</i>	Application Number	10/062099
	Filing Date	01/31/02
	First Named Inventor	Julian E. Pachon
	Group Art Unit	2121
	Examiner Name	Not Assigned
Total Number of Pages in This Submission	Attorney Docket Number	CA108US

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ENCLOSURES (check all that apply)		
<input checked="" type="checkbox"/> Fee Transmittal Form	<input type="checkbox"/> Assignment Papers (for an Application)	<input type="checkbox"/> After Allowance Communication to Group
<input checked="" type="checkbox"/> Fee Attached	<input type="checkbox"/> Drawing(s)	<input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences
<input type="checkbox"/> Amendment / Reply	<input type="checkbox"/> Licensing-related Papers	<input type="checkbox"/> Appeal Communication to Group (Appeal Notice, Brief, Reply Brief)
<input type="checkbox"/> After Final	<input type="checkbox"/> Petition	<input type="checkbox"/> Proprietary Information
<input type="checkbox"/> Affidavits/declaration(s)	<input type="checkbox"/> Petition to Convert to a Provisional Application	<input type="checkbox"/> Status Letter
<input type="checkbox"/> Extension of Time Request	<input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address	<input checked="" type="checkbox"/> Other Enclosure(s) (please identify below):
<input type="checkbox"/> Express Abandonment Request	<input type="checkbox"/> Terminal Disclaimer	Express Mail Cert., Green Card, Copies Of 14 Patents And 2 Publications, And Form PTO/SB/08A(2 Pages).
<input checked="" type="checkbox"/> Information Disclosure Statement	<input type="checkbox"/> Request for Refund	
<input type="checkbox"/> Certified Copy of Priority Document(s)	<input type="checkbox"/> CD, Number of CD(s) _____	
<input type="checkbox"/> Response to Missing Parts/Incomplete Application	Remarks	
<input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53		

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT	
Firm or Individual name	Gerald E. Lester
Signature	
Date	March 25, 2002

CERTIFICATE OF MAILING	
I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, Washington, DC 20231 on this date: 03/25/02	
Typed or printed name	Gerald E. Lester
Signature	
Date	03/25/02

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# FEE TRANSMITTAL for FY 2002

Patent fees are subject to annual revision.

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$ ) 180.00

## Complete if Known

Application Number	10/062099
Filing Date	01/31/02
First Named Inventor	Julian E. Pachon
Examiner Name	Not Assigned
Group Art Unit	2121
Attorney Docket No.	CA108US

## METHOD OF PAYMENT (check all that apply)

☒ Check ☐ Credit card ☐ Money Order ☐ Other ☐ None

☐ Deposit Account:

Deposit Account Number  
Deposit Account Name

The Commissioner is authorized to: (check all that apply)

☐ Charge fee(s) indicated below ☐ Credit any overpayments  
☐ Charge any additional fee(s) during the pendency of this application  
☐ Charge fee(s) indicated below, except for the filing fee to the above-identified deposit account.

## FEE CALCULATION

### 1. BASIC FILING FEE

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
101	740	201	370	Utility filing fee	
106	330	206	165	Design filing fee	
107	510	207	255	Plant filing fee	
108	740	208	370	Reissue filing fee	
114	160	214	80	Provisional filing fee	

SUBTOTAL (1) (\$ ) 0.00

### 2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

Total Claims  - 20\*\* =  X  =   
Independent Claims  - 3\*\* =  X  =   
Multiple Dependent Claims  =

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
103	18	203	9	Claims in excess of 20	
102	84	202	42	Independent claims in excess of 3	
104	280	204	140	Multiple dependent claim, if not paid	
109	84	209	42	** Reissue independent claims over original patent	
110	18	210	9	** Reissue claims in excess of 20 and over original patent	

SUBTOTAL (2) (\$ ) 0.00

\*\*or number previously paid, if greater; For Reissues, see above

## FEE CALCULATION (continued)

### 3. ADDITIONAL FEES

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
105	130	205	65	Surcharge - late filing fee or oath	
127	50	227	25	Surcharge - late provisional filing fee or cover sheet	
139	130	139	130	Non-English specification	
147	2,520	147	2,520	For filing a request for <i>ex parte</i> reexamination	
112	920*	112	920*	Requesting publication of SIR prior to Examiner action	
113	1,840*	113	1,840*	Requesting publication of SIR after Examiner action	
115	110	215	55	Extension for reply within first month	
116	400	216	200	Extension for reply within second month	
117	920	217	460	Extension for reply within third month	
118	1,440	218	720	Extension for reply within fourth month	
128	1,960	228	980	Extension for reply within fifth month	
119	320	219	160	Notice of Appeal	
120	320	220	160	Filing a brief in support of an appeal	
121	280	221	140	Request for oral hearing	
138	1,510	138	1,510	Petition to institute a public use proceeding	
140	110	240	55	Petition to revive - unavoidable	
141	1,280	241	640	Petition to revive - unintentional	
142	1,280	242	640	Utility issue fee (or reissue)	
143	460	243	230	Design issue fee	
144	620	244	310	Plant issue fee	
122	130	122	130	Petitions to the Commissioner	
123	50	123	50	Processing fee under 37 CFR 1.17(q)	
126	180	126	180	Submission of Information Disclosure Stmt	180.00
581	40	581	40	Recording each patent assignment per property (times number of properties)	
146	740	246	370	Filing a submission after final rejection (37 CFR § 1.129(a))	
149	740	249	370	For each additional invention to be examined (37 CFR § 1.129(b))	
179	740	279	370	Request for Continued Examination (R CE)	
169	900	169	900	Request for expedited examination of a design application	

Other fee (specify) \_\_\_\_\_

\*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) (\$ ) 180.00

## SUBMITTED BY

Name (Print/Type) Gerald E. Lester

Registration No. 27697  
(Attorney/Agent)

## Complete (if applicable)

Telephone 281-392-8288

Signature

*Gerald E. Lester*

Date 03/25/02

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03-26-02

68/2121  
#2  
S.I  
04-25-02



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Title: Improved Integrated Decision Support  
System For Optimizing The Training  
And Transition Of Airline Pilots

Application Serial No.: 10/062099

Attorney Docket No.: CA108US

File Date: January 31, 2002

Examiner: Not Assigned

Inventors: Julian Enrique Pachon &  
Benjamin Glover Thengvall

Art Unit: 2121

Assignee: CALEB Technologies Corp.

Assistant Commissioner For Patents  
U.S. Patent And Trademark Office  
Washington, D.C. 20231

RECEIVED  
MAR 29 2002  
Technology Center 2100

Dear Sir:

CERTIFICATION UNDER 37 CFR 1.10

Express Mail No.

Date Of Deposit

EU321525979US

March 25, 2002

I hereby certify that the following items are being deposited with the  
United States Postal Service "Express Mail Post Office To Addressee" service under 37 CFR  
1.10 on the date indicated above, and is addressed to the Assistant Commissioner For Patents,  
U.S. Patent And Trademark Office, Washington, D.C. 20231:

1. Utility Transmittal Form;
2. Fee Transmittal Form;
3. Green Card;
4. Information Disclosure Statement Memo (3 Pages) With Copies Of 14 Patents And 2 Publications;
5. Form PTO/SB/08A (2 Pages);
6. Check In Amount Of \$180.00 Made Out To U.S. Director Of Patents & Trademarks;
7. Self-Addressed And Stamped Post Card For Receipt Of Official Date Stamp Of The U.S. Patent & Trademark Office, And Return To Addressee.



Express Mail Certification  
Attorney Docket No. CA107US  
Page 2



Respectfully Submitted,

A handwritten signature in cursive script, reading "Gerald E. Lester".

Gerald E. Lester  
Reg. No. 27,697  
22107 Fielder Dr.  
Katy, Texas 77450  
Ph. 281-392-8288  
Fx. 281-392-2850